XXIV. On Gracilaria, a Genus of Tineidæ. By H. T. STAINTON, Esq.

(Continued from page 133.)

Sp. 16. Omissella (Douglas), Stainton. (Pl. XV. fig. 1.)

Alis anticis griseo-brunneis, strigulis costæ quinque, dorsique tribus niveis, basim versus fusco-marginatis.

Omissella, Stainton, Zoologist, 2163.

Not closely allied to any known species; has perhaps most resemblance to *Coriscium substriga*, but from this its different palpi, smaller size, want of an apical hook, and differently coloured anterior wings, at once distinguish it.

Expansion of the wings 4 lines.

Head and face white; palpi white, a fuscous ring at the end of the second joint, and another a little before the end of the terminal joint; antennæ dirty whitish, with fuscous annulations; thorax fuscous; abdomen fuscous, whitish underneath posteriorly; the four anterior legs have the femora and tibiæ dark grey, and the tarsi white; the posterior legs have the femora and tibiæ white, the end of the latter grey, tarsi white, with the ends of the joints

dark grey.

Anterior wings of a grey-brown, or ochreous, with five white streaks along the costa, nearly at equal distances, and three on the inner margin. The first costal streak lies not far from the base, is placed obliquely, and does not reach the middle of the wing; the second costal streak is placed similarly to the first, but is longer, reaching nearly to the fold; the third costal streak, placed similarly to the two preceding, but more attenuated, (a little expanded however on the costa,) is generally rather shorter than the second streak, but in one of my specimens it is continued right across the wing, forming with the third inner-marginal streak an uninterrupted fascia; the fourth costal streak is crescent-shaped, and reaches to the hinder margin; the fifth costal streak lies in the extreme apex. The first inner-marginal streak has its origin at the base, and is there very narrow, but expands into a triangular form opposite the end of the first costal streak, with which it forms an interrupted fascia; the second inner-marginal streak lies opposite the end of the second costal streak, forming with it an interrupted fascia; the third inner-marginal, situated at the anal angle, forms with the third costal streak an interrupted fascia, or else an entirely uninterrupted fascia. All these white markings have dark margins, and are preceded by darker scales on the sides next the base. Cilia grey, with the white markings continued through them, and with two rows of dark spots round the apex.

Posterior wings grey, with grey cilia.

First discovered by Mr. Douglas at Charlton sand-pit, July 29th, 1847; in the following summer Mr. Douglas again met with it, and observed that it frequented the Artemisia vulgaris; on the 3rd July last year I observed the leaves of this plant, in a lane between Birch Wood and Dartford Heath, mined by some larva, and collected several of them; these I kept in a tin canister along with several other plants collected at the same time, and from the leaves thus mingled together I obtained two specimens of Omissella, but whether from the Artemisia leaves or not I cannot positively say.*

Sp. 17. Scalariella, Zeller.

"Thorace et capite cum palpis niveis, alis anticis læte brunneis, vitta dorsali interne obtuse dentata nivea."

Scalariella, Z. Ent. Ztg. 1850. S. 160.

"Larger than Gr. ononidis. Head rather shining, snow-white. Antennæ brownish, with a darker basal joint. Maxillary palpi small, thin, pointed, whitish; labial palpi longer than the thorax, rather slender, falcate, at the end of the second joint somewhat thickened beneath by loose hairs, white; the pointed terminal joint half the length of the palpi. Thorax snow-white, on the shoulders pale yellowish-brown. The four anterior legs have the femora grey-brown, the tibiæ black-brown, with the base white; the tibiæ of the middle pair have the base itself brown, on the light side (in front); tarsi silky-whitish, with a brown spot at the base of each joint on the shady side. Posterior legs shining, with the femora grey, the tibiæ brownish-grey, and the tarsi brownish-white, with grey-brown spots at the bases of the three first joints. Abdomen grey-brown, beneath whitish.

"Anterior wings rather narrow, pale yellowish-brown. On the costa, before the apex, is a white, black-margined hook, curved outwardly, and at some distance before it a white, black-margined costal spot (this is entirely wanting on the right wing); at the end of the cilia of the apex of the wing are two white, broader, approximating, marginal hooks, under which the ground-colour is continued to the end of the cilia as a long streak, beneath margined with white. At the base of the inner margin arises a streak,

^{*} In July, 1851, I reared this species freely, from larvæ which mined the leaves of Artemisia.

sharply bordered internally by black scales; it has three broad blunt teeth, the second of which is confined on each side by a deep indentation, but the first is the shortest; the white streak is continued to the end of the cilia, and on them it encompasses the prolongation of the ground-colour. Cilia grey. Posterior wings narrow, pointed from the base, grey, with paler cilia."

Found by Herr Mann at the end of April, near Montenero, and

at the beginning of May at Ardenza, sparingly.

Sp. 18. Phasianipennella, Hübner. (Pl. XV. fig. 2.)

Alis anticis nitidulis fuscis, gutta dorsi medii pallida distinctiore, intus nigro-marginata, tribus costæ obsoletissimis.

Phasianipennella, Hüb. Tin. 321; Tr. X. 2, S. 209, 13; X. 3, S. 298; Zell. Isis, 1838, S. 675, 100; Linn. Ent. ii. 350.

Readily recognized by the pale triangular mark on the inner margin of the anterior wings, the other spots being very faint, or

not perceptible.

Head and face shining yellowish-brown; palpi dirty whitish, the terminal joint brown, with only the base and apex appearing in certain directions whitish; antennæ pale, with darker annulations; thorax yellowish-brown; abdomen brown-grey; the four anterior legs have the femora and tibiæ black-brown, tarsi brown, the bases of the joints white; hinder legs dirty whitish, the ends of the joints brownish.

Anterior wings broad, (appearing from the cilia broadest toward the hinder margin,) shining yellowish-brown, with a very slight violet-gloss. Near the middle of the inner margin is a small, triangular, faint yellowish, or whitish spot, the apex of which reaches beyond the fold of the wing, and has some dark brown scales round it; the base of this spot is sometimes prolonged along the inner margin, to near the base of the wing, as a narrow white streak; on the costa, just before the apex, are two faint, small, yellowish spots, and a little before the middle of the costa a still fainter spot may sometimes be perceived, with slightly darker margins; on the hinder margin are two still more evanescent paler margins, which are only perceptible in very fine specimens; the apical cilia are brown, with a darker line before their ends, and the ends also darker; inner marginal cilia grey.

Posterior wings shining grey, with grey cilia.

Not rare on the Continent, but its late period of flight, October, has probably caused it to be overlooked here. Hybernated specimens will occur in the spring, as of most of the other *Gracilariæ*.

The only British specimen I have yet seen was taken near Gosport, last December, by Mr. Wing.

I annex Zeller's account of the mode of feeding of the larva, which will probably lead to its detection by some of the provincial collectors.

"The larva feeds on Polygonum hydropiper, most usually in shady alderwoods, also often in more open situations. The plants, on an ordinary examination, only appear to want broad strips on the margins of the leaves. This might also have happened by the ravages of a Noctua larva: but if one examines the plants sideways, one easily perceives at the end of the gaps in the leaves, on the underside, the cones which the larva of Phasianipennella rolls up out of the strips of the leaves. Some plants nourish as many as a dozen, but generally only from one to three. larva is already to be found in the middle of August. It then lives as a miner between the skins of the leaf, the parenchyma of which it devours; the discoloured patches on the leaves betray its whereabouts. The mined patches have no regular form, and occur in the most different positions, but generally at the basal half of the leaf. The larvæ attain maturity at very different times. When it leaves off mining the leaf it manufactures the cone—at what period of its life it begins this work is still to be observed. It begins the cone at the margin of the leaf, which it bites off in a curved line, and thus cuts off a strip which still hangs by its broadest end to the leaf; this strip it rolls up into a blunt cone, the base of which it fastens to the leaf with white silk. Generally the strip of leaf is rolled from the base of the leaf towards the apex, rarely in a contrary direction. The older the larva is, the larger is the cone, since the larva cuts the strips continually broader; it only works across the midrib of the leaf, when it is young and tender. The upperside of the leaf is turned externally at the cone, which hangs perpendicularly on the under side of the leaf. The larva lives inside the cone, and feeds on the lower part of the walls of its dwelling; when its abode no longer suits, the larva leaves it, and makes a new one on another leaf.

"It undergoes its transformation to the pupa state within this conical habitation, in a tight-fitting, rather transparent cocoon, which is suspended to the apex of the cone by a thick, snow-white cord, about a fifth of the length of the cocoon.

"The perfect insect appears about three weeks after the transformation to the pupa state. Collectors wishing to obtain the pupæ should cut off those leaves which have the largest cones."

Sp. 19. Auroguttella, Stephens.
[Plate XV., figs. 3 and 4.]

Alis anticis nitidulis, violaceo-fuscescentibus, maculis quatuor alternatim oppositis aureolis; antennis fuscis, apice albo.

Auroguttella, Steph. Illust. iv. 274.

Stipella, Haw. L. B. 568 (non St. Ill. iv. 265).

Lacertella (F. v. R.), Zell. Isis, 1839, s. 209; Linn. Ent. ii. 347.
Allied to Quadruplella, Quadrisignella, and Bucculatrix aurimaculella.

Distinguished from Quadruplella and Quadrisignella by the less sharply margined spots of the anterior wings being of a golden-yellow, not whitish-yellow, by the first costal spot being slightly removed from the costa, and by the first inner-marginal spot extending to the base of the wing.

Distinguished from Bucculatrix aurimaculella by the smooth head, by the palpi, by the antennæ without eye-caps, by the first costal spot not being placed on the costa, and by the first innermarginal spot extending along the inner margin to the base of the wing (in Aurimaculella it is continued along the fold).

Expansion of the wings, 4-5 lines.

Head and face shining bronze-grey; palpi brown-grey, the apex white; antennæ blackish-grey, the apex white (I believe in all fine specimens, but Zeller gives the typical insect with unicolorous antennæ, and only his var. β with the apex white); thorax violet-grey, beneath yellow; abdomen grey, spotted with yellow beneath; the four anterior legs have the femora and tibiæ violet-grey, tarsi white, with the ends of the joints brown; the posterior legs have the femora at the base yellow, then pale grey, tibiæ pale grey, tarsi dirty whitish, the ends of the joints darker.

Anterior wings dark violet-grey, rather shiny, with four golden yellow spots; an oblong, rather large one on the inner margin, beginning at the base of the wing, and ceasing just opposite the commencement of the first costal spot (in some specimens it is prolonged a little further); the second inner-marginal spot is triangular, and lies just before the commencement of the cilia; the first costal spot does not touch the costa, is oval, and lies before the middle of the wing; the second costal spot lies near the apex, posterior to the second inner-marginal spot, is somewhat triangular; none of these spots have dark margins. In very fine specimens there are some yellow or whitish scales in the apex of the wing. Cilia violet-grey.

Posterior wings rather broad, brown-grey, with paler cilia.

Pretty generally distributed throughout the country, and not uncommon, but easily overlooked from its small size and dark

colour. It occurs in many parts of the Continent.

The larva feeds in June and October on the Hypericum perforatum; when very young, it mines the leaves (Pl. XV. fig. 4a), but afterwards it rolls them up into a form resembling two short cones (Pl. XV. fig. 4b), united by their bases: in these rolled up leaves it feeds on the inner epidermis, thus discolouring the cones, which soon assume a rust coloured appearance. larva, which has six legs and eight prolegs, is very pale yellowish; the head is slightly darker, and a darker middle streak is faintly indicated along the back. Unlike Phasianipennella, the larva of this species does not undergo its transformation inside the cone, but when full grown it leaves the cone and proceeds to another leaf, which it rolls up longitudinally in the form of a cigar (Pl. XV. fig. 4c), and then, spinning a white cocoon, turns to a brown pupa. The period for collecting the pupæ is the beginning of July, and from the end of October to April. The perfect insect appears in April and May, and in July and August.

The Gracilaria plumbella, figured by Duponchel, Supp., pl. 89,

fig. 13, is not improbably intended for this species.

The oldest name applied to this insect is undoubtedly Stipella, Haworth; but as in Haworth's description the first spot on the inner margin is entirely omitted, and the description is only explained by his "exemplarium unicum" being in the possession of the Entomological Society, I have not thought it desirable to retain this name.

Sp. 20. Quadruplella, Zeller. (Pl. XV. fig. 5.)

Alis anticis nitidulis fuscis, guttis quatuor oblongis obliquis sulphureis alternatim oppositis; pectore sulphureo-maculato.

Quadruplella, Z. Isis, 1839, S. 209; Linn. Ent. ii. 355. Auroguttella, Steph. Illust. iv. 363.

Allied to the preceding, and also to Quadrisignella; from Auroguttella it is distinguished by the sulphur yellow (not golden yellow) spots being very sharply defined, the first costal spot touches the costa, and the first dorsal spot is not continued to the base; Quadrisignella, which it resembles in the two last particulars, has the spots broad and placed nearly perpendicularly to the margins, whereas in Quadruplella the spots are narrow, and placed obliquely to the margins.

Expansion of the wings 4-5 lines.

Head shining yellowish-brown; face paler, more or less yellowish; palpi yellowish-brown, the base of the terminal joint and the apex whitish; antennæ brown, with grey annulations; thorax yellowish-brown, beneath spotted with sulphur; abdomen grey, beneath whitish. The four anterior legs have the femora and tibiæ dark brown, the tarsi at the base snow-white, otherwise brown, and the end joints with the brown prevailing more over the white; the posterior legs have the femora at the base externally sulphur yellow, otherwise brownish, tibiæ and tarsi grey, with the basal halves of the joints white.

Anterior wings rather pale yellowish-brown, with hardly the slightest tinge of lilac colour. The markings consist of four sulphur yellow spots, margined with dark brown. The first costal spot is before the middle, and is narrow, rounded, obliquely placed, and reaching half across the wing; the second costal spot before the apex is shorter, and is less obliquely placed; beyond the apex there appears in the cilia a very faint, pale spot. The first spot on the inner margin lies nearer the base than the first costal spot; it forms a blunt triangle, and has its longest side on the margin. The second lies near the anal angle, almost midway between the first and second costal spots; it is triangular pointed, and with its apex rather turned towards the hinder margin. The cilia round the apex of the wing are traversed by several dark shady-lines, and have the ends brown, those of the inner margin are grey.

Posterior wings rather broad, pointed, not long-pointed, grey, with paler cilia.

The above description is compiled from that of Zeller, in the Linnæa.

The only British specimen yet known is that in Mr. Stephens's extensive collection, found by Mr. Stephens "in June, 1827, at Ripley."

Zeller says that it "occurs in Bohemia, near Reichstadt; in Silesia, near Glogau; and in Livonia, near Kokenhusen; everywhere scarce. I have hitherto only taken five specimens; one of these on the 18th June, amongst mixed bushes, towards sunset. I found a dead male, in a box in which I had furnished the larva of Tortrix Wahlbomiana, with a leaf of Cirsium lanceolatum; whether the larva had lived on it I know not, since the leaf had already been thrown away before I observed the dead Gracilaria. Madame Lienig took the species in May, on the margins of fir woods."

As Mr. Stephens and Herr Zeller concur in giving June as the

period of flight, it seems probable that, as in the case of *Ononidis*, there is only a single brood in a year; yet it is possible, on the other hand, that there may occur a second brood at the end of autumn. The larva of the June brood should, at any rate, feed in May, at which time particular search should be made for rolled cones or mined leaves, in the hope of discovering the larva of this beautiful species.

Sp. 21. Quadrisignella, Zeller. (Pl. XV. fig. 6.)

Alis anticis fuscis, lilacino-nitidulis, guttis quatuor majusculis sulphureis alternatim oppositis; pectore sulphureo-maculato; antennarum apice albo.

Quadrisignella, Z. Isis, 1839, S. 209; Linn. Ent. ii. 375, pl. 2, fig. 17.

Very easily recognised by the large, sulphur-coloured, triangular spots of the anterior wings.

Expansion of the wings 4-5 lines.

Head and face brown; palpi brown, the terminal joint whitish at the upper side of the base and at the apex; antennæ brown, with paler annulations, the last fourth quite white; thorax brown, with a violet tint; abdomen grey, paler beneath. The four anterior legs have the femora and tibiæ dark violet-brown; tarsi snow-white, with the ends of the joints brown. The posterior legs have the femora at the base sulphur coloured, the remainder brownish; tibiæ brownish; tarsi, first joint brownish, four last joints white, with brown ends.

Anterior wings rather broad, brown with a lilac tint, with four large sulphur coloured, sharply defined, marginal spots. The margins of these spots appear in certain lights orange. The first spot is on the inner margin, near the base, and is triangular, with the apex round; the second spot is on the costa, before the middle, is smaller and more rounded; the third spot is on the inner margin, before the anal angle, and is the largest, it is triangular, with its apex prolonged beyond the middle of the wing; the fourth spot is on the costa, before the apex, is narrower, triangular, and its apex reaches half across the wing; cilia brownish grey.

Posterior wings unusually broad at the base, grey, with paler cilia.

Zeller observes, that "this pretty species has hitherto only been found near Glogau, where it is very scarce. I took both sexes in May, on hedges near leafy woods; once, on the 8th May, I took

three specimens, along a hedge amongst Rhamnus frangula, after a short, warm shower."

From its appearing so early in May, it is probably, like Auroguttella, double-brooded.

Sp. 22. Ononidis, Zeller. (Plate XV. fig. 7.)

Alis anticis fuscis, guttulis costæ quatuor, dorsi quatuor, apicis una argenteis; epistomio argenteo, palpis albis.

Ononidis, Z. Isis, 1839, S. 209; Linn. Ent. ii. 358. Argentipunctella, Stainton. Zool. 2163. Moniliella, Tengström. Fjäril. Fauna, p. 147.

Readily distinguished in this genus, by the silver spots on the brown anterior wings. Tengström, not having seen the insect alive, had fallen into the very natural error of taking it for an *Elachista*, and compared it with *Elachista pomposella*, with which it has a slight resemblance.

Expansion of the wings 3½ lines.

Head brown; face silvery; palpi white, the base of the second joint brownish; antennæ brown, annulated with whitish; thorax brown; abdomen greyish-brown. The four anterior legs have the femora and tibiæ brown, the tarsi white, with the ends of the joints brown. The posterior legs have the femora greyish-brown; tibiæ brown, with the base whitish, and the extreme end white; tarsi brown, with the ends of the joints white.

Anterior wings brown, with nine silvery spots; four of which are situated on the costa, four along the inner margin, and one at the apex; all these spots have dark margins. The first of these silvery spots is situated near the inner margin, not far from the base, and is round; beyond it, on the costa, lies the second, which is very small; hardly separated from this by the ground colour is the third, which is narrow, and extends in an oblique direction to the fold of the wing, and then drops perpendicularly upon the inner margin; the fourth spot is on the costa, about the middle, it is narrow, obliquely placed, and reaches half across the wing, pointing to the fifth spot; this latter lies on the inner margin, is very small, and has its apex turned rather towards the hinder margin; the sixth spot lies on the costa, as far beyond the fourth as that is beyond the second spot, it is slightly curved and pointed, and almost unites with the seventh spot, which is situated on the inner margin, at the anal angle; the eighth spot lies on the costa, a little before the apex, and is prolonged on the costal cilia, it is somewhat curved; the ninth spot lies at the apex of the wing, immediately before the commencement of the cilia, it is small and round; the cilia round it are brown, with two darker curved lines, formed by the end of the scales.

Posterior wings narrow, gradually pointed, grey, with paler cilia.

First found in this country by Mr. Weir, in July, 1847, near Tunbridge Wells, among Genista tinctoria. Mr. Weir informs me that where he meets with it there is no Ononis at all, and he presumes that it feeds there on the Genista.

Zeller says that "its chief resort at Glogan is a fir plantation, on a loamy hill, in a patch thickly grown with Ononis spinosa. Here I first took the small, and easily overlooked, moths from the middle of June to July. They can only be brought to fly during the day by trampling down the plants, but on still evenings they fly more readily, and are not hard to catch. They sit as the other Gracilariæ."

"The larva, which is pale, greenish-yellow, with a honey-yellow head, mines the lower, older leaves of the Ononis spinosa; it loosens the upper epidermis for the greater part of the leaf, and devours the parenchyma; it leaves the lower skin of the leaf quite uninjured, wherefore the leaves seen from below appear quite sound. Towards the base or apex of the mined place or on both are found collections of black excrement. The larva also appears to go into fresh leaves, since I have sometimes found an entire leaf mined, and the larva only in one leaflet. It crawls rather slowly and spins a thread. At the end of May the larva crept out of the dried leaves to seek a place suitable for spinning up, often going far away. The white cocoon is placed in a corner; it is twice the size of the larva, and is pointed on both sides. On the 14th of June the first moth appeared."

"The species does not appear to be double-brooded."

Sp. 23. Pavoniella (Metzner), Zeller.

"Alis anticis subcaudulatis aureis, strigulis quatuor costæ, tribus dorsi lineolaque ex media basi argenteis, fusco-marginatis, puncto apicis atro, pupilla argentea."

Pavoniella, Z. Linn. Ent. ii. 362.

"Most nearly allied to the preceding, easily recognized by the hook in the cilia, the paler gold yellow ground colour of the anterior wing and the silver marginal streaks directed obliquely to one another. It reminds one most of the genus Lithocolletis.

"Rather larger than the preceding. Thorax golden-yellow.

Head and palpi white. Antennæ brownish, hardly perceptibly annulated. Maxillary palpi rather short, with loose hairs; labial palpi shorter than the thorax, recurved, filiform, with somewhat projecting hairs on the underside, especially at the beginning of the third joint, but without a tufted prolongation. The four anterior femora yellowish brown; tibiæ and tarsi, as well as the whole of the posterior legs, snow-white, spotted with brown, the former colour prevailing in the tarsi, the latter in the tibiæ. Abdomen grey, with yellowish anal tuft (in the & white beneath), and

beneath with whitish margins of the segments.

"Anterior wings broad, golden-vellow, slightly shining. four costal streaks, the three first have the apices obliquely directed outwards, but the fourth has its apex directed inwards. The first at the commencement of the second third of the wing is prolonged in a fine costal line nearly to the base; its apex, as well as that of the second streak, is abruptly cut off. is thin and pointed. The fourth lies rather farther from the third than the three preceding from one another, has the broadest base and curves inwards (with its concavity directed outwards) till before the black spot with a silvery white pupil, at the apex of the wing. The short streak arising from the base of the wing is near the inner margin; it curves upward beyond the fold of the wing, and is thickened before its apex. The two first dorsal streaks are shorter and rather thinner than the costal streaks, and lie alternately with them; the first is placed rather more obliquely. The third is a triangular spot, with the apex directed towards the third costal streak, with which (on the left wing of the male) it forms an acute fascia. Beyond the apex of the wing, the ground colour is divided on the cilia into two streaks enclosing a white triangle, the upper streak has at its end a very short hook. Beneath, the cilia are whitish, towards the anal angle grey.

"The posterior wings are long-pointed, grey, with paler cilia.

"Occurs near Vienna, whence the pair described from Metzner's Collection come."

This beautiful little species yet remains undetected in this country.

Sp. 24. Kollariella (F. v. R.), Zeller. (Pl. XV. fig. 8.)

Alis anticis caudulatis brunneis, dorso, strigulis quinque costa-

Kollariella, Z. Isis, 1839, S. 209; Linn. Ent. ii. 363; Dup. Supp. 78, 3.

Not likely to be confounded with any known species.

Expansion of the wings 4-4½ lines.

Head and face white; palpi white; antennæ brown; thorax white, with the sides brown; abdomen greyish. The four anterior legs have the femora brown, tibiæ and tarsi brown, spotted with white; the posterior legs have the femora and tibiæ whitish, the tarsi white, with the bases of the joints brown.

Anterior wings brown, inclining to black, along the inner margin extends a narrow streak of white uninterruptedly to the anal angle; on the costa are five white streaks; the first begins a little before the middle, is placed very obliquely, and reaches, with its attenuated and rather curved apex, to the commencement of the last third of the wing; the second streak, which immediately follows the first, is much shorter, and does not reach as far as the first; the third streak, following at a little distance from the second, is placed less obliquely, points towards the anal angle, and reaches half across the wing; the fourth streak is slightly curved, its apex almost touching the apex of the preceding, it reaches half across the wing, but there appears an indistinct continuation of it to the anal angle; the fifth streak, which is small, is on the costa, immediately before the apex. Below the apex of the first costal streak lies a small white streak on the disk. At the apex of the wing is a black ocellus, from the end of which springs the black hook. Cilia at first brownish, then white, with black tips.

Posterior wings narrow, gradually pointed, grey, with paler cilia. "Occurs near Vienna, and at Pisa, in the beginning of May, singly, among ash trees in the marshes."*

Like the preceding, this still remains to be discovered in this country.

* Ent. Ztg. 1850, S. 161.